REMARKS

Claims 1-15 and 25-26 are pending.

Claims 16, 17, and 22-24 are withdrawn.

Claims 1-15, 25 and 26 are rejected.

Claims 5, 14, and 25 have been amended.

Claim Amendments

Claims 5, 14, and 25 have been amended. Support for the amendments can be found in the application as filed, for example, on pages 4-5. No new matter has been added.

Claim Rejections - 35 USC § 103

Claims 1-7, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. Pub. No. 2002/0112119 to Halbert et al. ("Halbert") and U.S. Pat. Pub. No. 2005/0005046 to Bashirullah et al. ("Bashirullah").

Claim 1 recites that the "calculating an achieved data transition density for at least one data lane." That is, the achieved data transition density was calculated for the at least one data lane. Claim 1 recites "transmitting a synchronization signal on the at least one data lane responsive to the achieved transition density." That is, the synchronization signal is transmitted on the at least one data lane. Claim 5 includes similar elements. The Examiner noted that Halbert does not explicitly teach transmitting the synchronization signal. The Examiner argued that Bashirullah teaches transmitting the synchronization signal.

However, even though a signal is transmitted in Bashirullah, that signal is not transmitted on the at least one data lane. In Bashirullah, the operation can switch between a current mode and voltage mode to switch between different operating bandwidths and different power consumption. See Bashirullah, Abstract, and ¶48-49. If no transitions are detected, a control signal can be generated to switch repeaters into the voltage mode for lower power consumption. Bashirullah, ¶60. However, that control signal is sent on control line 105, not on the data lane.

In particular, referring to FIG. 5 of Bashirullah, the transition detectors 520, 521, and 523 use FIFOs 510, 511, and 513 to determine if a transition has occurred. That is, transitions are detected on lines Din[0..N] and/or Dout[0..N]. However, the signal generated by the transition

detectors 520, 521, and 523 is transmitted on the control line Cin, not on Din[0..n], Dout[0..N], or any of the intervening lines. Thus, the signal on control line Cin is not transmitted on the at least one data lane.

Moreover, even if the control line Cin is somehow interpreted as part of the at least one data lane, the combination of Halbert and Bashirullah still do not render claim 1 obvious. No transition density for Cin is calculated.

Accordingly, the combination of Halbert and Bashirullah does not render claims 1, 5, and dependent claims 2-4, 6-7, and 25-26 obvious.

Claim 4 recites "transmitting a synchronization signal on all the data lanes if the achieved data transition density is less then the desired data transition density on the at least one data lane." That is, the synchronization signal is transmitted on all of the data lanes, not just the data lanes on which the achieved transition density was calculated.

In contrast, regardless of how data lane is interpreted in the combination of Halbert and Bashirullah, the synchronization signal is not transmitted on all of the data lanes. For example, if each of Din[0], Din[1], and the like are interpreted as individual data lanes, the signal on control line Cin is not transmitted on any of them. Alternatively, if a single data lane is interpreted as the parallel data line Din[0..N] and the like, along with the control line Cin, there is no indication that the signal on one control line Cin is routed to another grouping of Din[0..N] and Cin to activate/deactivate the repeaters in that chain.

Accordingly, the combination of Halbert and Bashirullah does not render claim 4 obvious.

Claim 25 recites "transmitting the synchronization signal having a number of transitions to cause the achieved data transition density for the at least one data lane to be greater than or equal to a desired data transition density." That is, the synchronization signal causes the achieved data transition density to be greater than the desired data transition density.

In contrast, the signal on control line Cin does nothing to affect to the number of transitions on the at least one data lane. As described above, the signal on control line Cin merely changes repeaters in line with data lines Din[0..N] between a current mode and a voltage mode. It does not introduce any transitions on to the data lines Din[0..N].

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halbert and Bashirullah as applied to claim 5 above, and further in view of U.S. Pat. No. 5,530,696 to Boggs et al. ("Boggs"). Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Halbert, Bashirullah and Boggs as applied to claim 8 above, and further in view of the applicant's admitted prior art ("AAPA"). Claim 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halbert and Bashirullah as applied to claim 5 above, and further in view of Boggs. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halbert, Bashirullah, Boggs as applied to claim 11 above, and further in view of AAPA. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halbert, Bashirullah, Boggs, and U.S. Pat. Application Pub. No. 2004/0056782 to Bliss et al. ("Bliss").

However, the addition of Boggs to Bashirullah renders Bashirullah unfit for its intended purpose. In Bashirullah, the depth of the FIFOs allows time for the repeaters to switch from the voltage mode to the current mode. That is, the control signal on control line Cin must be transmitted prior to even the first detected transition being transmitted.

In contrast, in Boggs, the goal is to count a particular number of transitions during a time period. See Boggs, col. 6, ll. 15-21. The result is not achieved until either the count is reached, or the time period expires. See col. 7, ll. 12-27 for example. The determination between 4 Mbps and 16 Mbps cannot be made until at least 488.4 transitions have occurred during 122.1 microseconds.

By adding the transition counters of Boggs to Bashirullah, Bashirullah would have to wait until a particular count is achieved before transmitting the control signal on control line Cin. As a result, any data during the counting would be lost or distorted as it was transmitted with the repeaters in the voltage mode rather than the current mode.

Moreover, Bashirullah needs the rolling window of its FIFO to maintain the repeaters in the current mode just long enough to transmit the last transition. If the transition counters of Boggs are used, the latched output of latch 56 could be maintained for as long as the counting period after the last transition. See Boggs, col. 6, ll. 54-67. By incorporating that into Bashirullah, Bashirullah could maintain the repeaters in the higher power current mode while no transition are occurring on the lines between Din and Dout. Thus, additional power would be consumed, in direct contrast to the desired operation of Bashirullah.

Accordingly, one skilled in the art would not incorporate the transition counters of Boggs into Bashirullah.

Moreover, with respect to claim 8, the Examiner is misinterpreting the FIFO of Bashirullah. The FIFO of Bashirullah has a depth of Cp+1. See Bashirullah, ¶60. Cp is not a number of clock cycles that are counted. In contrast, Cp relates to the depth of the FIFO.

Furthermore, claim 14 has been amended with elements similar to claim 1 described above. The addition of Boggs, the AAPA, and/or Bliss does not cure the deficiencies of the combination of Halbert and Bashirullah. For example, Boggs shows indicating a speed using a number of transitions, not transmitting a signal on a data lane, the AAPA only discusses NAND gates, and Bliss focuses on coding to reduce media noise.

As a result, claims 8-15 are allowable.

CONCLUSION

For the foregoing reasons, reconsideration and allowance of claims 1-15 and 25-26 of the application as amended is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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